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INAUGURAL DISSERTATION
ON
PULMONARY CONSUMPTION.

SUBMITTED TO THE PUBLIC EXAMINATION OF THE

FACULTY OF PHYSIC

UNDER THE AUTHORITY OF THE TRUSTEES OF COLUMBIA COLLEGE,
IN THE STATE OF NEW-YORK,

The Right Rev. BENJAMIN MOORE, D. D. President;

FOR THE DEGREE OF

DOCTOR OF MEDICINE,

On the 5th Day of May, 1807.

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BY ALIRE RAFFENEAU DELILE,

Of the City of Versailles, in France; Member of the Institute of Egypt,
of the Society of Agriculture of the Department *de Seine et Oise*;
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1807.

INSTRUMENTAL INVESTIGATION

OF THE

HUMAN NERVOUS SYSTEM

BY

WILLIAM D. HAYES

OF THE

UNIVERSITY OF CHICAGO

CHICAGO

1892

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TO

DAVID HOSACK, M. D.

Professor of Botany and Materia Medica in Columbia College, Fellow
of the College of Physicians of Philadelphia, of the Linnæan
Society of London, and Member of the Royal Medical
and Physical Societies of Edinburgh.

SIR,

IN addressing this essay to you, I cannot but avail myself of the opportunity of expressing to you the obligations I feel, in common with every person attending the medical school of this city, for the labour you have bestowed in improving the means of medical instruction, and the liberality you have manifested in devoting the earnings of your profession to the establishment of a Botanic Garden, which being the first that has been instituted in the United States, does you infinite honour, at the same time that it reflects reputation upon the medical school of New-York, to whose benefit you dedicate it. But I should be ungrateful not to acknowledge the kindness and attention I have also individually received from you. Accept, Sir, the most sincere expression of my sentiments of gratitude and esteem.

Your most obedient humble servant,

A. R. DELILE.

TO
DOCTORS
DESGENETTES,

(Late Chief Physician of the Army of Egypt) Professor
at the Medical School of Paris,

AND
LARREY,

(Late Chief Surgeon of the Army of Egypt) Chief Surgeon of the
Imperial Military Guard;

Members of the Institute of Egypt, Inspectors of the Service of Health
of the French Armies, Members of the Legion of Honour, &c.

THIS DISSERTATION

IS INSCRIBED

As a testimony of respect for their talents, and of gratitude
for their kindness,

BY THE AUTHOR.

ON
PHTHISIS PULMONALIS,

OR
PULMONARY CONSUMPTION.

THIS disease is thus defined by Dr. Cullen:
“Corporis emaciatio et debilitas cum tussi, febre
hecticâ, et expectoratione plerumque purulentâ.”

Morton and Sauvages have distinguished two
species, viz.

Phthisis sicca, *and* humida. *Sauvages.*

Phthisis incipiens, *and* confirmata auctorum.
Morton.

The first without expectoration of pus; the
second with a purulent expectoration.

Dr. Cullen has adopted this last distinction.

HISTORY OF THE DISEASE.

A person predisposed to phthisis is seized
commonly at the beginning of winter, or early
in the spring. It commences with a slight cough,
and some difficulty of breathing. In some in-

stances a pain in the chest is among the first symptoms; but not being confined to a particular part, or felt only during a full inspiration, the patient is induced to consider these premonitory symptoms as nothing more than those of a common cold, and therefore neglects the use of those remedies which are calculated to arrest the progress of the disease. The cough is at first dry, except when the disease begins under the form of a catarrh. It becomes gradually more frequent and troublesome, especially at night. The patient expectorates with difficulty a thin phlegm. If the remedies indicated in this stage of the disease be not timely applied, inflammation increases. The patient complains of more pain in the chest, and refers it generally to that part of the breast under the sternum, or to one side, upon which he lies with some difficulty. The pulse is quick and hard, as generally occurs in diseases in which membranous parts are the seat of inflammation. These are unequivocal symptoms of the *incipient stage of phthisis*. As the disease advances, expectoration increases, and the matter discharged assumes a purulent appearance. Hectic fever gradually approaches; chills are felt at intervals, followed by a dry state of the skin, and a sense of burning in the palms of the hands and soles of the feet. Respiration becomes more frequent, the pulse is quicker than natural, the tongue and fauces are clean, red, and moist.

The regular accession of fever is a concomitant of the suppurative stage, and adds to the debility already existing. Two paroxysms assail the patient in the twenty-four hours. The first comes on a little before noon, and ends towards six o'clock in the evening. The second succeeding at night, with more severity than the first, continues until past midnight; is increased by the warmth of the bed, and ends about three or four in the morning in a profuse sweat, which shows itself more especially upon the head, neck, and breast of the patient. A slight chill, a quickened pulse, a burning of the hands and feet, a circumscribed redness of the cheeks, are observed during each paroxysm, but are more strongly marked at night than during the paroxysm of the day. The night sweats become very profuse, and are usually attended with a costive state of the bowels. When they diminish, diarrhœa usually succeeds. No nourishment can repair the constant wasting of the body. Emaciation becomes extreme. The balls of the eyes sink into their sockets; the nails, wanting the natural support which the fat and hardened cellular texture afforded them, curve inwards. The whiteness of the teeth is remarkable, owing probably to a cause similar to that which gives the eyes a pearly hue, viz. a want of carbon in the system, as likewise appears from the general deficiency of fat, which requires for its composi-

tion a great proportion of carbonic matter. The smaller circulating and absorbent vessels lose their tone; the legs become oedematous. Small pustules and ecchymoses appear on the skin, the expectoration diminishes, the muscular power necessary to unload the lungs of the great quantity of effused matter is exhausted, and the patient, almost speechless through excessive hoarseness and debility, possessed yet of all his senses, sees death approaching, and calmly resigns himself to his fate.

CAUSES OF PHTHISIS PULMONALIS.

The *predisposing* and *exciting* causes of phthisis are numerous, and as they vary, the disease progresses moderately, or terminates quickly. Among the *predisposing* causes, a scrophulous hereditary taint is considered one of the most fatal. The relaxed condition of the glandular system which takes place in scrophula, is also extended to the surface of the bronchia, where tubercles are probably formed at the mouths of the exhaling vessels.

A weak and narrow chest, which is probably occasioned by the want of vessels sufficiently large to carry a due proportion of nourishment to that part of the body, predisposes to phthisis, and is oftentimes to be met with in persons of a

scrophulous habit, who have passed their infancy in a state of languor, without that degree of exercise necessary for health, and which alone is capable of correcting this hereditary vice of the constitution.

The compression made upon the lungs by contorsion of the chest in diseases of the bones, denotes a predisposition to phthisis, marked also by the peculiar affection of the voice which is then produced.

It has been observed, that people of a sanguineous temperament, in whom an active circulation takes place in the smaller vessels upon the surface of the body, and which is designated by a peculiar thinness and lustre of the skin, a very fair complexion and fine hair, are more subject to consumption than people of the *bilious* and *melancholic* temperaments. The rationale of which is found in the delicate structure of the vessels which are spread on the surface of the body, internally as well as externally, and therefore upon the lungs where they come in contact with the air.

Sometimes small-pox, measles, and other eruptive diseases, when suddenly repelled from constriction occasioned by cold, or the effect of drastic purgatives, have laid the foundation for phthisical complaints, most probably owing to the relative action which subsists between the lungs, the alimentary canal, and the external surface of the body.

Phthisis has been also the consequence of nursing, in delicate mothers, and in those who have suckled their children beyond a period proportioned to their bodily strength.

In copious discharges of blood from the uterus, or in fluor albus, when it has been of long duration, the debility does not remain locally confined; the contents of the chest are considerably weakened, and the lungs become often the seat of the disease. The success of mercury in some consumptive cases, tends to show that phthisis sometimes arises from syphilitic virus.

The suppression of accustomed or necessary evacuations, as of hæmorrhoids in males, and the catamenia in females; the want of them at that time of life when they should make their appearance, and their cessation at the usual period, may occasion a disproportionate determination to the lungs, and produce phthisis. The suppression of the menses may be a consequence as well as a cause of this disease, and whenever it occurs is a great source of alarm both to the patient and her friends, who hastily prescribe remedies oftentimes improper and dangerous.

The want of accustomed stimuli, as of exercise in the open air, of fermented or spirituous liquors, manifest often their bad effect by an affection of the chest. Dr. D. Hosack, in his lectures, observes, that during his attendance as physician at the New-York State Prison, many cases of

consumption were occasioned by confinement under such circumstances, and in persons otherwise not predisposed to complaints of the chest. On the contrary, they possessed a good constitution, and were supplied with as many conveniences and necessities as a well-regulated institution of this nature can afford.

Great and sudden changes of temperature, an atmosphere alternately dry and moist, prove injurious to the lungs, and predispose to phthisis, especially those who are of a delicate habit of body. In proof of this it is to be remarked, that it is not the disease of warm latitudes, nor of countries where an uniform temperature prevails.

Hunting, farming, a hardy life, and pursuits which generally require exercise in the open air, exempt from phthisis. Frequently also they are the means of preventing that disease when even a predisposition to it exists, and one of the most effectual remedies when it has already taken place. Accordingly it is remarked by Dr. Rush,* that phthisis is unknown among the Indians of this continent. It attacks people of sedentary habits, and rarely those who are exposed to the inclemencies of the weather, or whose occupations require great muscular exertion, as labourers, house-carpenters, blacksmiths, and ship-builders.

This disease is frequent throughout the whole

* See Thoughts on Consumption:

eastern coast of the United States, where it is induced by the vicinity to the sea, the prevalence of north-east winds, and sudden changes in the temperature of the air. The moist climate of the islands of Great-Britain render it common in that part of the world. All large cities favour its progress. Many trades predispose to it. Extraneous matters received into the lungs during inspiration, by millers, hair-dressers, and stone-cutters, render them very susceptible of phthisical complaints. Dr. Withering* has observed, that whilst flints for potteries were pounded in mortars, the people so employed universally died consumptive. Linnæus, in his valuable collection of the *Amœnitates Academicæ*,† has recorded, that people who were employed in Sweden in cutting grinding-stones from quarries, died of phthisis before the age of thirty years, from the noxious effects of the stony particles which they inhaled.

The dry grinding used in manufactories for polishing steel instruments, or pointing needles, has the same pernicious effect. We learn it from an interesting description given by Dr. Johnstone, of Worcester. The iron dust which flies off, with small particles from the grinding-stones, unite in small balls with the mucus of the bronchia, and workmen are seized with cough, a

* See Letter to Dr. Beddoes.

† See vol. viii. p. 159.

bloody and purulent expectoration, waste in flesh and strength, and die before the age of forty. Dr. Kirkland has given a similar account of scythe-grinders, who, among themselves, call this fatal disease the *grinder's rot*. People employed in spinning wool, and constantly using their *saliva* while they breathe an atmosphere loaded with fine particles of wool, are also very subject to consumption. Every person who will inquire of gold-smiths employed to gild silver, by a process during which they necessarily inhale fumes of mercury, will learn from them to what danger their trade exposes them. Blowing glass at furnaces is also known to be very pernicious. The violent exercise of the lungs and chest in persons learning the flute, or other wind instruments, frequently does injury to the delicate texture of the lungs. Writing at a desk, a bent posture of the trunk, as shoe-makers continue in for the greatest part of the day, have a considerable tendency to generate phthisical disposition.

EXCITING CAUSES.

Hæmoptysis, or spitting of blood, readily produces phthisis in persons predisposed to this disease. The vessels of the lungs in delicate habits are easily ruptured, and heal with difficulty; they frequently remain in a state of ulceration.

On account of the frequency of *hæmoptoe* as the exciting cause of phthisis, Dr. Cullen has placed this disease, with great propriety, in his class *hæmorrhagiæ*. It is also to be observed, that females are more frequently the subject of this disease than males; which is to be ascribed not only to their more delicate frame of body, but also frequently to a suppression or irregularity of their periodical evacuations. But hæmoptysis, without some predisposition, is not of itself sufficient to produce phthisis. Persons of good constitution recover with little danger from the rupture of a vessel in the lungs, occasioned by the application of external violence and other causes. Numerous instances have been recorded by practical writers, of females who have enjoyed perfect health after having laboured for many years under habitual discharges of blood from the lungs, which nature seemed to have substituted for menstruation.

Pneumonia, especially *pneumonia peripneumonia*, may produce phthisis, but requires the formation of *vomica*, and a predisposition in the person affected. This event rarely happens. With good management *pneumonia* terminates by resolution towards the fifth or seventh day. Symptoms of inflammation, however, may continue longer, and the disease may be protracted beyond the fourteenth day; in which case the formation of an abscess is to be expected. Its termination, by

an opening into the cavity of the pleura, at the external surface of the lungs, may occasion *empyema*, but it may also open into the bronchia. Ulceration, in cases of this sort, generally heals in a short time, and the frequent contact of air with the diseased part does not, as is commonly supposed, prevent the cure. Unfavourable circumstances must combine to produce phthisis, to render the suppuration acrid, or to occasion such change in it as may generate hectic fever. It does not take place without previous debility or a defect of constitution.

Catarrh in persons predisposed to phthisis, may be productive of the disease by means of the unusual determination to the lungs, which exists during the presence of inflammation. It acts severely upon the delicate membrane of their exhaling surface, which, in its structure as well as in its office, is analogous to that of the skin, which is remarkable in those persons for its peculiar softness and transparency. The repeated efforts made by coughing to disengage and force up the mucus from the air cells, produces great irritation, and at length ulceration.

Asthma is usually enumerated by practical writers among the exciting causes of phthisis. When this disease is accompanied with, or occasioned by deformity of the chest, we can readily comprehend its operation in inducing phthisis. When asthma is attended with a copious dis-

charge from the surface of the lungs, as occurs in that species called *humoral asthma*, and this discharge is suddenly suppressed by cold or other causes, the inflammation induced may readily terminate in ulceration of the lungs, especially as these organs are already debilitated by previous disease, accompanied with a feeble state of the constitution. But asthma, like catarrh, requires predisposition in the habit to render it an exciting cause of phthisis.

Tubercles are the most common source of phthisis; but as they have been found in some instances without the disease, their existence cannot be considered as necessarily producing phthisis. Their composition and nature have never been sufficiently ascertained. They differ in different subjects, but always exist more or less in those who die of consumption. They are few or numerous; affect particular spots upon the surface,* or are dispersed through the whole of the substance of the lungs; are solitary, or united in small bunches. They frequently have the appearance of small glandular bodies; at other times they are found in a schirrous state, enclosing pus, or composed of a cheesy-white or curdy substance, sometimes of a *cretaceous* nature, which crackles upon pressure. In all these cases they certainly are diseased bodies. I am strongly in-

* See Baillie's Morbid Anatomy, p. 37 and 41, plates iv. and v.

clined to adopt the opinion of those authors who have considered them as schirrous enlarged *glands*. Morbid action and debility produce in them changes similar to those which occur in the mesenteric glands, and in the liver itself when enlarged by disease.

In the case of a patient who, during the course of clinical lectures at the New-York Hospital, died this winter of consumption, after the disease had been accompanied with all the symptoms, as I have described them in the *history of phthisis*, the mesenteric glands were found schirrous, and considerably enlarged; they contained *pus*, and a white *calcareous matter*, which did not differ from the contents of tubercles, which were also very numerous in the lungs.

This strong analogy, as long as glands are not anatomically discovered in the lungs, tends to corroborate an opinion which has been expressed by the celebrated physiologists, Darwin* and Bichat,† viz. “ that where tubes pour out from secreting surfaces a matter which is not brought from any compound organ in view, they perform no less office than glands which differ from them by mere elongation of vessels and complication of cells. This also tends to show, that the nature of secretions, their salutary or injurious qualities,

* See Zoonomia, sect. xxvi. 2.

† See *Traité des Membranes*, p. 228.

depend less on the conformation of organs than on the chemical combination of causes yet unknown, which produce changes in the humours and solids of the body, by destroying pre-existing affinities, and creating new ones. Morbid anatomy has thrown already much light upon the nature and functions of organs which were imperfectly known. May not tubercles, or enlarged glands of the lungs, such as they are found after deaths from consumption, exist also in other diseases of debility, unaccompanied by cough, expectoration, hectic fever, and phthisis. This question cannot be resolved without numerous examples. I shall consider myself, however, sufficiently authorized to conclude that tubercles may exist in the lungs without much inconvenience, as long as they are not diseased.

Scrophula is an exciting as well as a predisposing cause of phthisis, when adventitious, and not hereditarily derived from a vice of the constitution. It has its source in the debility of the lymphatics, and is seated more especially in the glandular system. It attacks the most vascular parts, and consequently the lungs, where it generates tubercles, or acts with no less danger by impregnating them with its virus, which gives rise to inflammation, suppuration, and phthisis.

Contagion sometimes spreads this disease through members of the same family. A remarkable instance of this sort was communicated

this winter by Dr. D. Hosack, to the gentlemen who attended his course of medical lectures. This disease appeared in a family of healthy well made children, born in this city from parents of good and sound constitution; one child communicated it to another; it extended in succession, and proved fatal to them all. It is known to pass sometimes from a husband* to his wife, and vice versa. But how far this contagion may be specifically extended is not determined. In the sick wards of hospitals, where the slow recovery and debility of patients convalescent from other diseases predispose them to this cruel disorder, the great number who fall victims to it, in proportion to those who die of other diseases existing at the same time, give reason to suspect, in some instances, the contagious nature of phthisis. From a comparison of this disease with measles and other contagious diseases, it appears that confirmed phthisis possesses a specific virus, which corrupts the lungs.

An impure state of the atmosphere, occasioned by sore legs and other ulcers, as occur in hospitals, does not generate phthisis in persons breathing the air thus vitiated; but air impregnated with the specific emanation of ulcers of *the lungs*, becomes capable of producing the same disease in

* See Darwin's *Zoonomia*, sect. xxxiii. 2, 7; and Letter to Dr. Beddoes, p. 64.

persons who remain long under the influence of some predisposing cause. As a proof that fetid animal matter, or a vitiated state of the air do not alone favour the progress of phthisis, I shall adopt the remark of Dr. Withering, in his letter to Dr. Beddoes, "that people of different trades, who breathe an impure air in confined places, as butchers and cat-gut makers, are less subject to phthisis than other people."

PROXIMATE CAUSE.

The definition of a proximate cause, as expressed by Dr. Gregory, in the following elegant language, "*Causa quæ præsens morbum facit, sublata tollit, mutata mutat,*"* is perfectly applicable in phthisis, to the ulceration of the substance of the lungs, which appears to be the proximate cause of this disease. The vascular structure of the lungs, their constant motion in respiration, render an ulcer of their substance productive of the great variety of symptoms attending phthisis. The formation of that ulcer is more to be dreaded, and is more rapid and more extensive in its progress, in proportion as we fail in our efforts to subdue the previous inflammation of the lungs.

* See *Conspectus Medicinæ*.

Recoveries which we have frequent opportunities to see of simple wounds in the lungs, of complicated gun-shot wounds, and vomica, are evident proofs that such diseases are far from being incurable: on the contrary, we infer that a suppurating wound, or an ulcer of the lungs, admits of cure, but that the success depends on the treatment pursued in the early stage of it, before sinuses are formed, or it has terminated in tubercles. Sinuosities are well known to retard the cure even of external ulcers. In the lungs, which are very vascular, they are also readily formed, and from the perpetual movement of these organs in respiration, they are rendered more dangerous and difficult of cure: it is, therefore, an useful precept, never to temporize in the forming or inflammatory stage of this disease.

DIAGNOSIS.

Dr. Stoll, of Vienna, has very properly called *tussis stomachica* a disease which might be mistaken for phthisis. This species of cough derives its origin from a foul state of the stomach, which organ is irritated by the presence of ill-concocted matters, but not to a degree sufficient to produce nausea or vomiting; it induces, however, an irregular action of the diaphragm, and extends its irritation to the lungs, producing cough; it also

occasions a foul tongue, and sordes upon the teeth, which symptoms are the reverse of what take place in phthisis, and afford a sufficient distinction between these two diseases. As *tussis stomachica* originates from improper diet, the cure of it is readily accomplished by those medicines which are calculated to cleanse the stomach and bowels.

Common cold or catarrh may, in some instances, be confounded with phthisis. The inflammation of the nasal cavities, communicated to the fauces and bronchia, accompanied with a sense of fulness in the vessels of the head, is sufficient to distinguish this disease from phthisis; nor is the termination of catarrh in phthisis to be apprehended, except when some predisposing cause is discovered in the general habit of body, or mode of living of the patient. Chronic catarrh, occurring with violence, and often proving fatal in situations and at seasons in which phthisis more generally prevails, is not, however, to be confounded with it. Catarrh renders the lungs less capable of performing their important functions, exhausts the system by the abundant secretion which it produces, is of itself dangerous, and in some instances terminates in phthisis.

Asthma might be mistaken for phthisis, but is generally periodic in its attacks, is characterized by spasmodic affections, and unattended by those febrile symptoms which constitute phthisis.

Phthisis must also be distinguished from a *vomica* of the lungs. This last affection of the chest is preceded by pain, difficult respiration, and other symptoms characterizing active inflammation. The great quantity of pus evacuated at the moment the abscess opens, affords also a sufficient distinction between *vomica* and phthisis.

The pain in the side, dry cough, hectic fever, produced by *empyema*, might be readily mistaken for symptoms of phthisis, but they proceed from *vomica*, pneumonia, or external injury, which serve to distinguish those diseases.

Abscesses of the liver in some instances exhibit a train of symptoms, which, at first view, resemble those of phthisis. The matter of these abscesses finds its way through the lungs by piercing the diaphragm. The pus, destruction of parts, and ulceration, are not the effect of phthisis, and must be carefully distinguished from it, as the disease requires a particular treatment. Dr. William Saunders* has observed, that sometimes hepatic abscesses open spontaneously through the diaphragm into the air cells of the lungs, giving passage to the matter which is thus evacuated by expectoration. A similar circumstance is noticed as of rare occurrence, in a memoir upon hepatic abscesses, by Bertrandi,†

* See Treatise on the Liver, p. 220.

† See Memoires de l'Academie de Chirurgie de Paris, tom. iii. p. 504.

who, for the description of the fact, has referred to the observations of Stalpart Vanderwiel.*

This winter an instance of the same sort occurred at the New-York Hospital, during the attendance of Dr. John R. B. Rodgers, professor of clinical medicine.

A patient died of hepatitis after an illness of nearly two months. His body was opened, and the following is the substance of the report which the professor read at his lectures :

Having laid the abdomen open, the liver was found enlarged, and adhered considerably to the diaphragm. In separating the adhesions, the knife passed into a sack in the left lobe of the liver, which was almost entirely hollow and full of pus, mixed with blood perfectly resembling matter which the patient had expectorated before. The diaphragm was corroded, and the left portion of the lungs, in other respects not diseased, admitted of a passage for the matter arising from the corresponding lobe of the liver. Another cavity, smaller, and perfectly distinct, existed in the great or right lobe, and communicated with the lungs of the same side.

The patient, from the beginning of the disease, had frequently complained of cough. His pulse was quickened, but neither hard nor full. His tongue and teeth were covered with a peculiar

* See *Observationes Ravior.* vol. ii. p. 202. Leyden, 1727.]

fur. The application of blisters and anodyne mercurial liniment to the parts affected; the use of proper remedies to mitigate fever, to support the strength, and to ease the cough, gave the patient little relief. He expectorated a considerable quantity of matter tinged with blood. Diarrhœa supervened, convulsions seized him, and terminated in death.

This patient, a seaman, had been admitted into the hospital more than a fortnight after the first attack of the disease, which he attributed to a strain occasioned by hard work. He had not been in a situation to receive timely medical assistance. The previous injury could not be overcome by the remedies which were employed, and he fell a victim to it. A practitioner unacquainted with the possibility of this source of expectoration in this case, might have pronounced the disease phthisis pulmonalis. But the appearance of the tongue and teeth, which were foul, and the absence of fever of a well-characterized type, were sufficient to determine the nature of the complaint.

OF THE CURE OF PHTHISIS.

The means of cure in this disease are deduced from the consideration of its causes and symp-

toms, which, by early attention, may be often prevented or removed.

In those families where a predisposition to this disease is hereditary, great care should be bestowed upon the first education of the child, and that such regimen be observed as is best calculated to counteract those vices of the habit to which it is naturally inclined.

With this view it is important that a child born of a delicate mother predisposed to phthisis, should be provided with a nurse of a vigorous and healthy constitution; for, by continuing at the mother's breast, frequently both the parent and child are sacrificed.

For the same purpose, removing children from the city into the country, which, for a part of the year at least, is commonly practicable, seldom fails to improve their constitution, and generally succeeds in giving vigour to such as are of a weak or delicate habit of body.

We are confirmed in the propriety of this remark by observing the greater degree of health, and the more robust form of body, which children educated in the country acquire, compared with those born and brought up in cities. The hardy mode of life, the active amusements of the country, the freedom from the restraints of dress and fashion common in cities, all concur to improve the constitution.

In this place the remark also naturally occurs, that the present fashion of dress adopted by young ladies, is not a little calculated to increase this disease. Tight lacing the chest, and the use of *corsets*, by impeding respiration and confining the motion of the ribs, of themselves become, in some instances, exciting causes of phthisis; but where a predisposition to consumption exists, they invariably serve to increase it.

In the different occupations or trades injurious to health, frequently much is to be done by early attention to the means of counteracting their mischievous tendency; but in some instances the most cautious management cannot guard against the ill effects of particular employments: the only remedy in such cases, is for the patient not to persist in an occupation found to be unhealthy, but to resort early to another branch of business, before his health is irrecoverably impaired.

The diseases which are most commonly the exciting causes of phthisis, viz. hæmoptysis, pneumonia, catarrh, &c. call for the aid of an attentive physician to accomplish the cure, and should teach the patient, when recovered, not to expose himself to the danger of a relapse. Proper dress and diet have generally the most happy effect in preventing a return of the evil. When carefully attended to for a certain space of time, they not only restore the usual strength

to the system, but sometimes invigorate it to a degree which may allow afterward of small irregularities; for an injurious cause produces a slight transitory effect upon a person in health, while it generates a disease in others debilitated by long irregular habits.

A strict attention to dress and diet is almost impossible in many circumstances; in others the constant watchfulness which it might create, the frequent privations to which it might expose, would be productive of as great inconvenience and injury as the approach of the disease itself. Nevertheless, the good effect of regimen will not be denied in all cases where it is practicable.

It is not less important in the treatment of phthisis to attend to the cause, than to the stage and symptoms of the disease; as remedies, to be exhibited with success, must accordingly be accommodated to the case.

Thus, in young women, when irritation at the chest indicative of approaching phthisis takes place, at the same time that the catamenia should make their appearance, it not unfrequently originates from a morbid sensibility of the nervous system which sometimes attends that period of life. This sensibility first discovers itself in producing irritation at the stomach, hysteria, flatulence, loss of appetite, a dislike for animal food, a fondness for acids, pickles, and such articles as make a strong impression upon the stomach.

From the same source of irritation proceed pain in the chest, a frequency and shortness of breathing, a troublesome hacking cough, a general loss of strength, fever, and night sweats. These complaints, if neglected or mismanaged, readily terminate in a confirmed consumption of the lungs; whereas, tonic remedies, such as steel, bitters, a generous and nutritious diet, exercise in the open air, short journies, especially on horseback, should be prescribed, and will effect a cure, by diminishing the morbid sensibility, and thereby removing the first cause of the disease.

In like manner, when incipient phthisis proceeds from an exhausted state of the system induced by suckling, if the cause be not attended to by the physician, he will prescribe in vain, and not unfrequently both mother and child perish from his inattention to the great source of the evil.

Again, when phthisis is the consequence of the cessation of the menses, a moderate bleeding (even when the habit under other circumstances might forbid the use of the lancet and other debilitating remedies) will generally remove the plethora which is induced; whereas, blisters, emetics, issues, and pectoral remedies usually prescribed, so far from removing the disease, will serve oftentimes to hasten its progress.

It will be proper in this place to make some observations upon the use of the lancet in this disease. The experience of practitioners most

conversant with the treatment of consumption, teaches us that blood-letting should be in a great degree confined to the first stage of this disease; that in the latter stage, its debilitating effects counteract the advantages otherwise to be expected from this remedy. Moderate bleeding in incipient phthisis relieves the pain in the chest, renders respiration less frequent, and by restoring the secretions which had been interrupted, facilitates the transmission of blood through the lungs, and thereby unloads those organs of the disproportionate quantity of fluids which had oppressed them; but this remedy is to be employed with a cautious hand, for if frequently repeated, or the evacuation be too large, the debility which ensues will soon be succeeded by an irremediable train of symptoms.

The buffy or sily appearance of the blood drawn in this disease, I am induced to consider as an equivocal test of inflammation, inasmuch as it is frequently observed in diseases unattended with other symptoms of inflammation, and, therefore, must prove a fallacious evidence of the necessity of blood-letting in phthisis, especially too as the buffy coat is not uncommon in this disease, even at that period when the patient is sinking under excessive debility. The prudent and judicious physician, in forming his opinion of the propriety of blood-letting, will be guided by the general condition of the pa-

tient, the state of the pulse, the tongue, the digestive organs, and period of the disease, as well as the appearance of the blood drawn.

Emetics aid expectoration, promote cutaneous perspiration, produce a revulsion of morbid action and irritation from the lungs, and allay the frequency and difficulty of breathing. Their good effects have led practitioners to employ a great variety of emetic substances in order to select the quickest and least debilitating. Antimonial preparations and ipecacuanha have sometimes been objected to, as acting upon the bowels. They are, however, safe remedies in the first stage of phthisis.

The *sulphate of copper*, or *blue vitriol*, acts almost instantaneously when taken into the stomach; its action is chiefly confined to that organ, and is less debilitating to the system than those emetics most in use.

Dr. Simmons has employed it with good effects prescribed as follows: The patient swallows first about half a pint of water, and a solution of a few grains of blue vitriol immediately after. The whole is instantly rejected; and the same effect is next to be obtained from drinking a second glass of water, which commonly terminates its operation.

Dr. Thomas Maryat recommends* the blue vitriol, with tartrate of antimony, in the proportion

* See New Practice of Physic, p. 88.

of two grains and a half of each* in a spoonful of water. From the small quantity of water in which this emetic is exhibited, it is called the *dry vomit*.

The sulphate of zinc in solution, according to the prescription of Dr. Moseley,† affords a convenient and safe emetic. One or two spoonful produce vomiting without debilitating effects.

Dr. Reid has recommended ipecacuanha both with and without the sulphate of zinc, and has placed much confidence in the daily exhibition of that emetic as successful in the treatment of phthisis, not only in the first stage, but also in some instances even in the second. He considers that the compression made upon the lungs by the action of the diaphragm in vomiting, evacuates the viscid and purulent matter accumulated in the bronchia, and removes the obstructions of the biliary vessels and chylopoetic organs. In this manner the patient is freed from a great source of pain and irritation, at the same time that he is thereby enabled to make use of tonic medicines and nutritious diet.

* See New Practice of Physic, p. 28.

† ℞ Vitriol. alb. ʒ iij.

Alum. rup. ʒ j.

Coccinellæ pulver. gr. iij.

Aquæ ferventis lbj. Misce in mortario marmoreo. Solutio a fæculentia vel residendo expurgetur, vel per chartam bibulam filtretur. Treatise on Tropical Diseases, p. 384 and 542.

A little reflection on the nature of this disease serves to fix the extent to which emetics may be useful. When abused, they weaken the digestive organs; and in phthisis all hope of recruiting the strength, which gradually vanishes, rests upon the powers of the stomach and intestines to receive and to transmit nourishment.

Epispastics, viz. blisters, setons and issues, are indicated in phthisis to remove the irritation from the lungs. They stimulate without danger the external parts which are not possessed of the exquisite sensibility of the organs affected. Their great efficacy is not owing to the local discharge which they produce, but rather to the artificial irritation which they occasion, and which, according to the experience of practitioners, renders blisters preferable to issues and setons. Dr. Mudge was cured of consumption by the application of an issue, and has observed, that the salutary effect of the remedy depends on the great quantity of the discharge produced. This opinion is not well founded, for if the patient's recovery depends upon the depletion of the system, we might obtain this end more effectually by means of blood-letting, cathartics, &c. and I am disposed to believe that a local irritation stimulates at the same time the whole nervous system, occasions a favourable transfer of excitement, and*

* See Dr. J. Mudge on Catarrhus Cough, p. 52.

thus diminishes the violence of the disease. The repeated application of blisters, upon this principle, is to be preferred, both in the incipient and confirmed stages of phthisis, to issues, setons, or blisters kept open by epispastic dressings.

Laxative medicines promote the circulation in the abdomen, stimulate gently the alimentary canal, prevent the torpor which costiveness might induce upon the secreting organs, and thereby contribute to the cure of phthisis in its first stage.

Nitrous medicines, aperients and sudorifics diminish the heat of the body and febrile excitement; linseed tea, barley water, and mucilaginous drinks, are also very proper auxiliaries.

Anodynes, given at night to procure rest and to allay cough, are attended with good effects, and in many instances are indispensably necessary, especially when an emetic has been previously employed to unload the lungs.

Mercury, by producing a general action of all secretory organs, is a valuable remedy in phthisis. When it produces salivation the disease is suspended, and for the time totally removed; but it frequently recurs when the salivation ceases. We therefore observe, that even those remedies which have been considered as the most valuable, have no specific effect in the removal of phthisis. The moderate use of mercury in the first stage of this disease, may undoubtedly be of service. Dr. Reid considers that it acts successfully as a

deobstruent, and that it is of doubtful efficacy in the second stage; and gives different cautions against its use in some cases.* The practice of the physicians attending at the New-York Hospital, has convinced me that its exhibition in many instances, even so far as to produce slight salivation (at the same time that other remedies are applied to allay cough and irritation), may promote the resolution of tubercles, and thus contribute to the cure of the disease.

The digitalis purpurea, or *fox-glove*, a plant of the natural order of *solanaceæ*,† which all partake of a narcotic quality, has been celebrated for the cure of phthisis; but physicians have differed widely in their opinion with respect to this remedy. No less contradiction exists concerning its advantages than its mode of operation.

It appears that the use of this medicine was first introduced with an expectation, that as it had been found successful in scrophula, it might also be successfully employed in phthisis, the obstinate and incurable nature of which, in many cases, is ascribed to a scrophulous taint. This reflection arises from a passage in the writings‡ of Dr. Beddoes, whose surprise is somewhat emphatically expressed, that *digitalis* had not been sooner thought of as a remedy in consumption

* See Essay on Phthisis, p. 188.

† See Murray's Apparatus Medicaminum, tom. i. p. 728.

‡ See Essay on Consumption, p. 265.

of the lungs, especially as its sensible effects had been long known, and readily suggested the application of it to a variety of diseases.

The celebrated Haller, more than half a century ago, in his work upon Helvetic plants, has expressed, in the following terms, the opinion then entertained of digitalis:* “ *Pro vulnerariâ habetur Lobel. et ad strumas commendatur imponenda. Sed acris est et vomitus alvumque ciet Rai. ut inter venenatas censeatur Boerhaavio. Extus contusam herbam et unguentum ex floribus ad podagram, ad strumas et rachitidem Angli† laudant; nostris officinis ignota est.*”

With the supposition that digitalis might discuss tubercles of the lungs as well as scrophulous tumours, its use had become for a while almost universal and indiscriminate. With a similar theoretical view Dr. Michael Ryan‡ has recommended cicuta and the juice of the leaves of tussilago or colt's-foot.

Experience has fully discovered the properties of digitalis. It must be given in small quantities, not exceeding a few grains of the powdered leaves, or a few drops of their tincture, which is preferable. A dose of ten or twenty drops, re-

* See Stirp. Helvet. p. 617.

† Digitalis is indicated as a remedy for consumption, in a work of the year 1710, by W. Salmon. See London Medical Review and Magazine, vol. v. p. 303.

‡ See Inquiry into the Nature, Causes, and Cure of Consumption, p. 158.

peated four or five times a day, may be gradually increased.

This medicine has a very sensible effect in diminishing the frequency of the pulse, and sometimes reduces it considerably below its natural standard. It renders respiration slower than natural, and if the dose be considerable, it produces nausea, vomiting, fainting, vertigo, stupor; and if taken in very large quantity, or by accident, it operates as a poison, and, like opium, proves fatal. In one respect it differs from the other narcotics; it acts powerfully in increasing the secretion of urine: hence it holds a place in the materia medica as a diuretic, and has been a fashionable remedy in the treatment of dropsy; but as its sedative operation is very considerable, we need not be surprised that it should have fallen into disrepute in that disease, which in most instances is the effect of debility.

In phthisis a specific power to remove tubercles has been ascribed to this plant, and this operation has been accounted for by supposing that it increased the action of the absorbent vessels, and enabled them to carry away the matter composing tubercles. A supposition of this sort is not only groundless, but contrary to sound reasoning; since this medicine, by reducing the force of the heart and arteries, and consequently diminishing motion, cannot at the same time increase the action of a particular set of vessels.

I have seen this medicine judiciously prescribed in a number of cases at the New-York Hospital and the Alms-House, without that success which might have been expected from the advantageous reports given by some of the most celebrated practitioners of England. In several instances it diminished sensibly the frequency of the pulse, but did not produce any essential change in the disease; the expectoration continued no less abundant, and the gradual decay of the patient's strength increased, notwithstanding the exhibition of bitters, tonic remedies, and nourishing diet. The great difference of results in this country, from those published by Dr. Magennis* in England, renders it necessary for me to adduce the testimony upon which I have formed an opinion of the virtues of this medicine. In doing this I shall avail myself of the observations of Dr. Hosack, communicated in his lectures on the *Materia Medica*, and which he has permitted me to use.

“ On account of the sedative operation of this plant, it has lately been restored to the *Materia Medica* as useful in *phthisis pulmonalis*. During my attendance as physician at the State Prison, the New-York Hospital, and the Alms-House, as well as in my private practice, I have had opportunities of prescribing it frequently in all the

* See London Medical and Physical Journal, vol. v. p. 201.

different stages of that disease; in some with decidedly good effects; in others it manifestly did harm. In the first, or inflammatory stage of that disease, it was useful in removing the pain and soreness of the chest, in lessening the frequency of the cough, in facilitating expectoration, and in diminishing febrile action in general; but in the advanced or latter stage of the disease, it sunk the strength of the patient, destroyed the appetite, and in all respects increased the violence of the complaint.

“ In one case of incipient phthisis, preceded by hæmorrhage from the lungs, it operated like a charm in relieving the patient from some of the most formidable symptoms of the inflammatory stage of that disease. The same medicine will also probably be found a valuable acquisition in the treatment of most inflammatory complaints, and may be no less useful in pleurisy, peripneumony, or inflammation of the brain, than in the first stage of phthisis.

“ I fear, however, that from the promiscuous prescription of it in every stage of that disease, it may lose the reputation which it has lately acquired.

“ It was observed by Dr. Young, in his treatise on opium, that that medicine is improper where blood-letting is necessary; I remark of digitalis, that it is only useful where blood-letting and other depleting remedies are indicated.”

The good effect of the remedies which I have already mentioned, depends altogether upon the propriety and time of their application, as no other advantage can be derived from their number than the convenience of choice, according to symptoms and circumstances.

Warm bathing is a valuable remedy in addition to those generally used. The bath, at a temperature not exceeding 92° of Fahrenheit's thermometer, abates febrile heat, opens the pores of the skin, equalizes the circulation, and promotes the secretions generally; on these accounts it is an useful remedy in the inflammatory stage of phthisis.

Inhaling the steam of warm water is also very proper; it relaxes the inflamed membrane of the bronchia, and assists the secretion and expectoration of matter.

Factitious airs, viz. carbonated hydrogen, carbonic acid gas, or hydrogen, combined with a sufficient portion of atmospheric air to render them respirable with as little danger as possible, have been tried often with apparent success. Owing to a specific quality, and to the absence of a due proportion of oxygen, they diminish the strength and frequency of the pulse, render the respiration less frequent, and produce a disposition to sleep. They seem calculated rather for the first than for the second stage of phthisis.

On the contrary, oxygen gas increases arterial

action, gives a momentary vigour to the system, and might perhaps be useful in the second stage of the disease. Its good effects are unquestionable in several diseases arising from nervous affections; but in phthisis, the great exhaustion which threatens the system renders the success of oxygen doubtful.*

Modern researches in natural philosophy have given rise to the pneumatic branch of medicine, which owes its fame to the writings and experiments of Priestley, Black, Lavoisier, Fourcroy, Beddoes, Percival, Thornton, and other practical observers. The methods to procure the different gases have been rendered simple and convenient; extensive observations have been repeated to discover the circumstances to which those gases are applicable; and this science is daily improving. Having only witnessed the effect of gases in a few experiments, I shall refer to the writings of practical authors for information upon this subject.

The diet in the first stage of phthisis should be composed of fruits and vegetables chiefly. Diluent and mucilaginous drinks are likewise extremely proper, and when inflammatory symptoms subside, milk is a proper nourishment. A certain proportion of lime-water succeeds sometimes to accommodate milk to weak stomachs,

* See Chaptal's Elements of Chemistry, vol. i. p. 139.

where a disposition to acescency exists; but it should never be given in union with brandy or other spirituous liquors.*

Great benefit is derived from the well-regulated temperature of the apartment of the patient. A partial stream of cool air from a window or door is very injurious to consumptive persons; it increases the disposition to cough, and must be carefully avoided.

Moderate exercise in the open air, walking, riding, &c. in a mild day, are of service. Flannel worn next the skin affords the best defence against the variations of the atmosphere. Its use should be recommended to all persons affected with symptoms of phthisis, who become particularly sensible of the changes of the air.

With respect to the salutary effect of wearing flannel, which might be more generally introduced in public establishments, a report of the New-York State Prison, published in the year 1800, by one of the inspectors, deserves to be mentioned. In that publication the author states, that since flannel had been used as recommended by the Physician (Dr. Hosack), "the number of the sick had decreased, the diseases became less violent, and fewer deaths occurred."†

* See Fothergill. London Medical Observations and Inquiries, vol. v. p. 376.

† See an Account of the State Prison or Penitentiary-House, p. 90. New-York. Isaac Collins and Son. 1801.

The confirmed stage of phthisis requires tonic remedies, and a diet which the first or inflammatory stage forbids. Blisters, even at an advanced period, may be repeated with success, but as they probably do good by the irritation which they excite, and not by the discharge they produce, it is desirable to have all the advantage of their first effect without the debility produced by the latter. The best method is to dress the blister with some mild ointment, and, when healed, to renew it if the pain in the chest renders it necessary.

Aromatic and stimulating bitters give tone to the muscular fibre, prevent the return of febrile paroxysms, lessen the expectoration, and, by diminishing fever, render the night sweats less frequent and profuse.

The most efficacious medicines for that purpose are the *polygala senega*, *aristolochia serpentaria*, *columbo*, and *gentian* roots.

Infusions of *boneset* (*eupatorium perfoliatum*), *horehound* (*marrubium vulgare*), or *lichen-islandicus*, upon the same principle, are useful tonics, and may be given freely during the remission of fever.

Myrrh and ammoniac are also useful stimulants in this disease: they diminish the expectoration, and contribute to support the strength of the patient. These gummi-resinous substances may be exhibited either prepared in the form of a lac,

or made into pills. According to the experiments of Macbride,* transparent solutions of them may be obtained by means of lime, and in this manner Dr. Reid has recommended the solution of myrrh.

The vapours or fumes of different substances have been often prescribed in order to produce upon the lungs, effects similar to those of fomentations upon external parts. The fumes of resins excite coughing, and are injurious; while the vapour of *vitriolic ether* acts as an antispasmodic, and is beneficial.

Owing to the general property of carbon to arrest the progress of putrefaction, *carbonic acid gas* diminishes the fœtor of the breath and of the matter expectorated; but being among the most noxious gases for respiration, it cannot be used with too much caution.

The *elixir of vitriol** is useful to check the tendency to night sweats, and sometimes concurs, at a late period, to restrain them, and to restore strength.

The most dangerous symptoms of phthisis are often obviated or removed by those remedies. We should be aware of the inefficacy of bark, against the use of which the opinion of Lieutaud†

* See Experimental Essays, &c.

† The acidum sulphuricum aromaticum of the Edinburgh Dispensatory by Dr. Duncan.

‡ See Précis de la Médecine Pratique, tom. i. p. 391.

and Fothergill* is decisive. The latter author recommends it only in that species of consumption which arises from debility occasioned by suckling or immoderate uterine discharges.

Opiates, through the whole course of the disease, cannot be dispensed with as moderating cough, alleviating pain, and procuring sleep. In the latter stages they may also serve to arrest diarrhœa; but as the frequent use of opium debilitates the system, it should be only had recourse to when absolutely necessary. The stimulating medicines mentioned before are found more successful than opiates in preventing the progress of the disorder.

Astringents, as preparations of *kino*, *catechu*, or the solution of *sulphate of zinc*, in a dose not sufficient to produce vomiting, succeed sometimes to suppress diarrhœa, and thereby to re-establish the functions of the intestinal canal.

A nourishing diet is necessary in the advanced stage of phthisis. Eggs, oysters, the different testacea, crawfish, broiled meat, jellies, afford the most substantial food: these articles should be given in small quantities, often repeated. Attention to this circumstance is necessary, that fever may not be excited or increased by the distention of the stomach, and the labour of digestion occasioned by a full meal. The farinacea,

* See London Medical Observations and Inquiries, vol. v.

such as oats, maize, barley, sago, arrow-root, &c. are well adapted to a weak state of the stomach in this disease.

A *milk diet* has been highly recommended by authors. While some have given the preference to ass's and goat's milk, others have extolled the efficacy of human milk. The observations of physicians in all ages bear testimony to the good effects of milk in disorders of the lungs; but they are not such as to give us reason to consider that aliment as a specific remedy. Milk is not a nourishment suited to all circumstances, nor to all constitutions. The experience of the patient can alone determine the propriety of employing it as an article of diet, otherwise it may impair the digestive functions, and become an additional source of disease.

Wine of good quality, and unmixed with brandy, is not to be forbidden; but the use of ale and porter is infinitely more beneficial, as they are more nutritious and less stimulant.

Change of air and a journey, especially from a colder to a warmer situation, are not less useful to persons recovering from phthisis, than they are necessary to those who receive no benefit from the remedies which have been noticed.

Much service may be derived likewise from riding on horseback. Both ancient and modern authors have recommended exercise in this disease. In those cases which proceed from, or are

attended with hæmoptysis, riding on horseback should be cautiously made use of. The cures effected by exercise, added to the high authority of Sydenham in favour of riding, afford abundant evidence of its utility.

Authors have been greatly divided upon the virtues and qualities of *mineral waters*, but they all agree upon the benefit of a journey to those places of general resort, and to which probably the patient is more indebted for his recovery than to any quality which the water may possess.

Sea voyages, since the time of Pliny* and Celsus,† have been considered as among the most effectual remedies in pulmonary consumption, especially voyages from a cold to a temperate climate.

Sea air, sailing, and the *exercise* occasioned by the motion of the ship, are together beneficial; and the sickness and vomiting consequent thereon, especially to those unaccustomed to sea voyages, are often very useful.

The exercise of the swing has been recommended to consumptive persons (where sea voyages were inconvenient or impracticable) by Dr. Carmichael Smyth, of London, who asserts, that he prescribed it in a variety of cases with advantage; but the repeated experiments of Dr. Duncan‡ on this mode of exercise in

* See lib. xxxi. cap. 6.

† See lib. iii. cap. 22.

‡ See Medical Commentaries, vol. ii. p. 155.

phthisis have not been so successful, and in his opinion do not justify the expectations of Dr. Smyth.

Riding, especially in an easy carriage, gives appetite and strength to persons already debilitated by the disease; and it must be remarked that the good effects of medicines, diet and regimen, are more apparent when prescribed in the early stage; and that when predisposition exists, it is more easy, by timely aid and attention, to prevent the disease, than when advanced to remove it.

I cannot conclude this dissertation with language more applicable to the treatment of this disease, than that adopted by Dr. Reid:

Principiis obsta, sero medicina paratur

Cum mala per longas invaluere moras.

OVID.

THE END.

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